

# Four new species of *Solanum* L. (Solanaceae) from south east Queensland

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## Summary

Symon, David E. (1995). Four new species of *Solanum* L. (Solanaceae) from south east Queensland. *Austrobaileya* 4(3): 429–437. *Solanum coracinum*, *S. dissectum*, *S. gympiense* and *S. stupefactum* are newly described. All occur south of Rockhampton in south-eastern Queensland.

Keywords: Solanaceae, *Solanum coracinum*, *Solanum dissectum*, *Solanum gympiense*, *Solanum stupefactum*, *Solanum* – south east Queensland.

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## Introduction

When my revision of *Solanum* in Australia was published (Symon 1981), a number of collections in the Queensland Herbarium were labelled only as related to some appropriate species. Further collections of the relevant taxa have become available and sorting of the Queensland Herbarium collections resulted in a number of these taxa being given numerical distinction and published as such in volume 2 of the Flora of south-eastern Queensland (Stanley & Ross 1986). These numbers are referred to in the notes that follow the species descriptions below.

Three of these, *S. coracinum*, *S. dissectum* and *S. gympiense*, belong to the *S. ferocissimum* group (Whalen 1984) that have relatively small, deep-red, succulent fruits. This group of species extends to Papua New Guinea and to New Caledonia. One of these new species is exceptional in that no stellate hairs could be found despite the fact that I believe it clearly belongs in the *S. ferocissimum* group of species. The presence of stellate hairs has been considered a significant diagnostic character in the subgenus *Leptostemonum* to which this species group belongs.

The fourth of the new species, *S. stupefactum*, was recognised in 1981 as distinctive and was thought then a possible

introduction. However, more collections of it have become available which have persuaded me to formally name it. It is unusual in that it is an androdioecious species (i.e. lower flowers hermaphrodite, upper flowers male). Though androdioecious, this species does not seem close to the more western species of the largely dioecious *S. dioicum* group (Whalen 1984) and immediate relatives in eastern Australia are not evident. Incidentally, the circumscription of this group as accepted by Whalen, includes some discordant elements and some of the Australian species he included, at least, seem closer to his *S. incanum* group, from Africa, which includes *S. melongena*, the commercial eggplant, than to the *S. dioicum* group.

## Taxonomy

### *Solanum coracinum* D. E. Symon, sp. nov.

Frutex ad 1.5 m altus, erectus, effuse ramosus. Aculei ad 1 cm longi, conferti in caulibus, copiosi in foliis, recti vel aciculares, erecti, saepe rubiginosi. Pili sparsi, minuti, stellati, interdum absentes. Folia late elliptica in circumscriptione sed profunde lobata; lobi ad 2.5 cm longi et 5–7 mm lati, apice acuto, sinibus rotundatis. Inflorescentia cyme usque ad 5–8 cm longae, spisse aculeata infra medium et supra sparsim aculeata; pedicellus c. 5 mm longus, tenuis, inermis; calyx c. 3 mm longus, lobis lanceolatis apiculatis inermibus; corolla c. 8 mm longa, stellata, purpurea aut violacea;

filamenta staminalia c. 1 mm longa; antherae c. 5 mm longae, sursum angustatae, poris distalibus; ovarium (globosum?) c. 1 mm diametro, glabrum; stylus c. 6 mm longus, rectus, erectus, glaber; stigma parvum, capitatum. Bacca globosa, 7-8 mm diametro, coracina.

Semina obtuse triangularia in circumscriptione, compressa, 2.5-3 mm lata, foveolata. **Typus:** Queensland. DARLING DOWNS DISTRICT: 26°37'S, 149°23'E, c. 22 km E of Yuleba, on road to Miles, 17 Nov 1975, R.J. Henderson 2381, undulating plain, red brown sandy

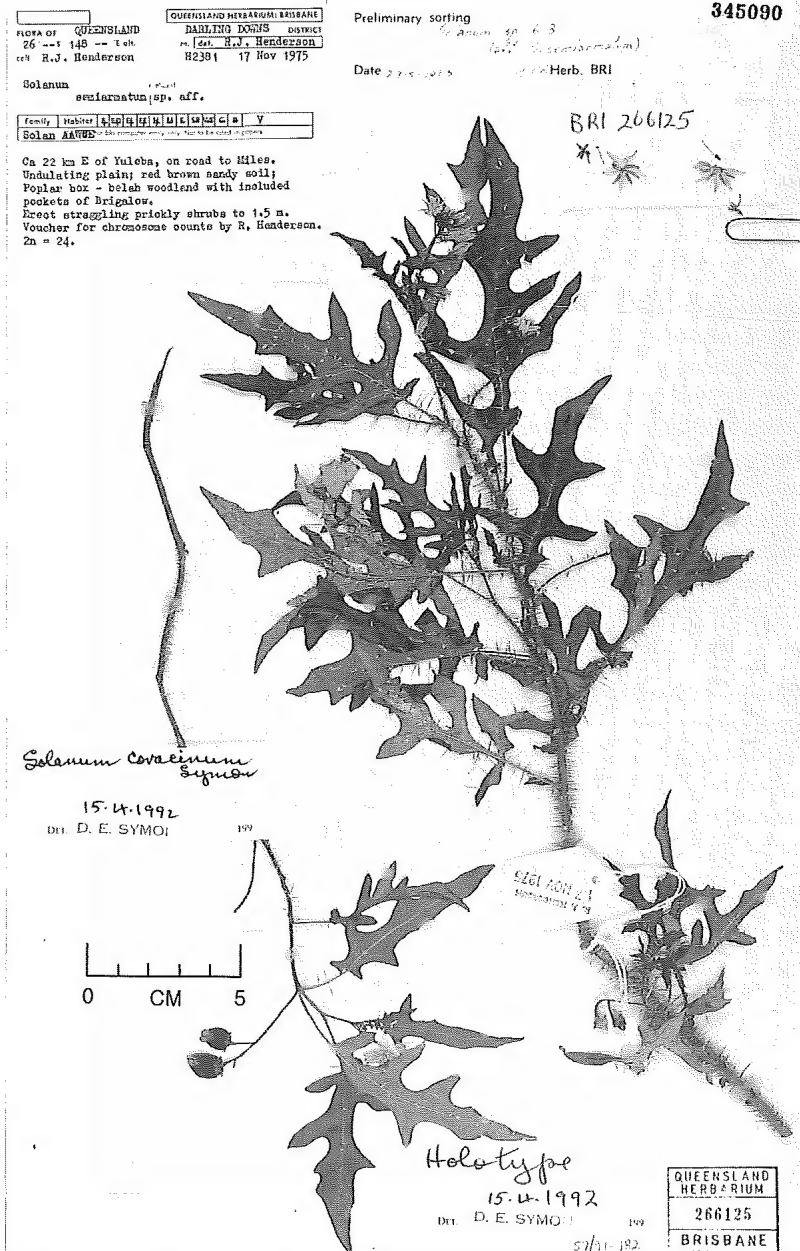


Fig. 1. Type of *Solanum coracinum*.

soil, poplarbox-belah woodland with included pockets of brigalow, erect straggling prickly shrub to 1.5 m,  $2n = 24$  (chromosome count by R. Henderson) (holo: BRI(BRI266125); iso: AD). **Fig. 1.**

Erect, weakly branched shrub to 1.5 m tall, straggly with age. Prickles dense, crowded on main stems, abundant on upper and lower leaf surfaces, straight, erect, acicular, to 1 cm long, often reddish. Indumentum of sparse, minute, stellate hairs [sessile, porrect stellate, the central ray equal to the lateral rays] and minute subpapillate glandular hairs, usually present on young growing tips, scattered on upper and lower leaf surfaces and on apices of corolla lobes (lens needed), or absent. Leaf lamina broadly elliptic in outline but deeply lobed with 3 or 4 lobes on each side, up to 8 cm long and 6 cm wide; lobes 1–2.5 cm long, 5–7 mm wide, the longer ones with broadly triangular secondary lobes 1–2 mm long; sinuses rounded; lobe apices acute; leaf apex acute; base often oblique. Inflorescence a cyme 5–8 cm long, unbranched, bearing c. 4–25 flowers, densely prickly in the lower half, less so above; pedicel c. 5 mm, slender, unarmed; calyx c. 3 mm long, with lobes lanceolate, apiculate, unarmed; corolla c. 8 mm long, divided about halfway into 5 triangular lobes, purple (2 records) or mauve (1 record); filaments c. 1 mm; anthers c. 5 mm long, tapered upwards, poricidal; ovary c. 1 mm long, glabrous; style c. 6 mm long, straight, erect, glabrous; stigma small, capitate. Fruiting pedicel c. 1 cm long, slightly thickened distally, calyx lobes little enlarged in fruit; berry 7–8 mm diameter (dried material only), glossy black when mature (1 record). Seeds flattened

irregularly discoid to bluntly triangular in outline, 2.5–3 mm wide, minutely reticulate, 36 and 48 in two fruits examined. Chromosome number:  $2n = 24$  (Henderson 2381, BRI).

**Additional specimens examined: Queensland.** DARLING DOWNS DISTRICT: Palardo, May 1934, *Blake* 5866 (BRI); 16 km E of Texas, Jun 1951, *Everist* 2539 & *Webb* (AD, BRI); Shellbourne, NE of Miles, May 1960, *Johnson* 1630 (BRI); E of Combidiban Farm, Cypress Downs, Sep 1961, *Jones* 164 (BRI); 'Benandre', 23 miles [37 km] SE of Texas, Apr 1962, *Pedley* 988 (BRI); 20 km W of Millmerran, Feb 1984, *Stower* [AQ396755] (BRI);

**Distribution and habitat:** South-eastern Queensland with most collections from Giligulgul, Yuleba and Condamine with outliers near Millmerran and Texas, to the south east, on dark clay soil, forest loam or shallow soil on stony ridges.

**Etymology:** The specific epithet is derived from the Latin *coracinus*, meaning shiny or glossy black, a reference to the ripe fruits.

**Notes:** This species is closely related to *S. semiarmatum* and *S. dissectum*. From the former, it differs in the leaves being almost glabrous below and with much greater degree of lobing, the simple cymes and possibly darker coloured fruits (red vs. black). *S. coracinum* was segregated in the Queensland Herbarium as *Solanum* sp. (Miles R.W. Johnson 1630) and may be keyed out in the Flora of south-eastern Queensland (Stanley & Ross 1986, 418) to *Solanum* sp. 3, as will *S. dissectum*. The two species may be distinguished by the following characters:-

**Table of differences between *S. coracinum* and *S. dissectum*.**

<i>S. coracinum</i>	<i>S. dissectum</i>
stem prickles dense	stem prickles scattered
stellate hairs sparse, minute	stellate hairs absent
inflorescence 4–25-flowered	inflorescence 4 or 5-flowered
berry black	berry red

**Solanum dissectum** D.E. Symon, sp. nov.

Suffrutex ad 50 cm altus, erectus, rubellus. Aculei 5-9 mm longi, recti, sparsi; omnes partes glabrae praeter pilos axillares minulos papillosos. Folia 2-6 cm longa, late lanceolata in circumscriptione sed profunde lobata; lobi 5-15 mm longi, 2-5

mm lati, sinus inter lobos rotundatis. Inflorescentia cymae c. 1 cm longae, aculeis 1 vel 2 et floribus 4 vel 5; pedicellus c. 7 mm longus; calyx c. 4 mm longus. Corolla profunde divisa, lilacina; lobi c. 7 mm longi, c. 2 mm lati; antherae c. 3.5 mm

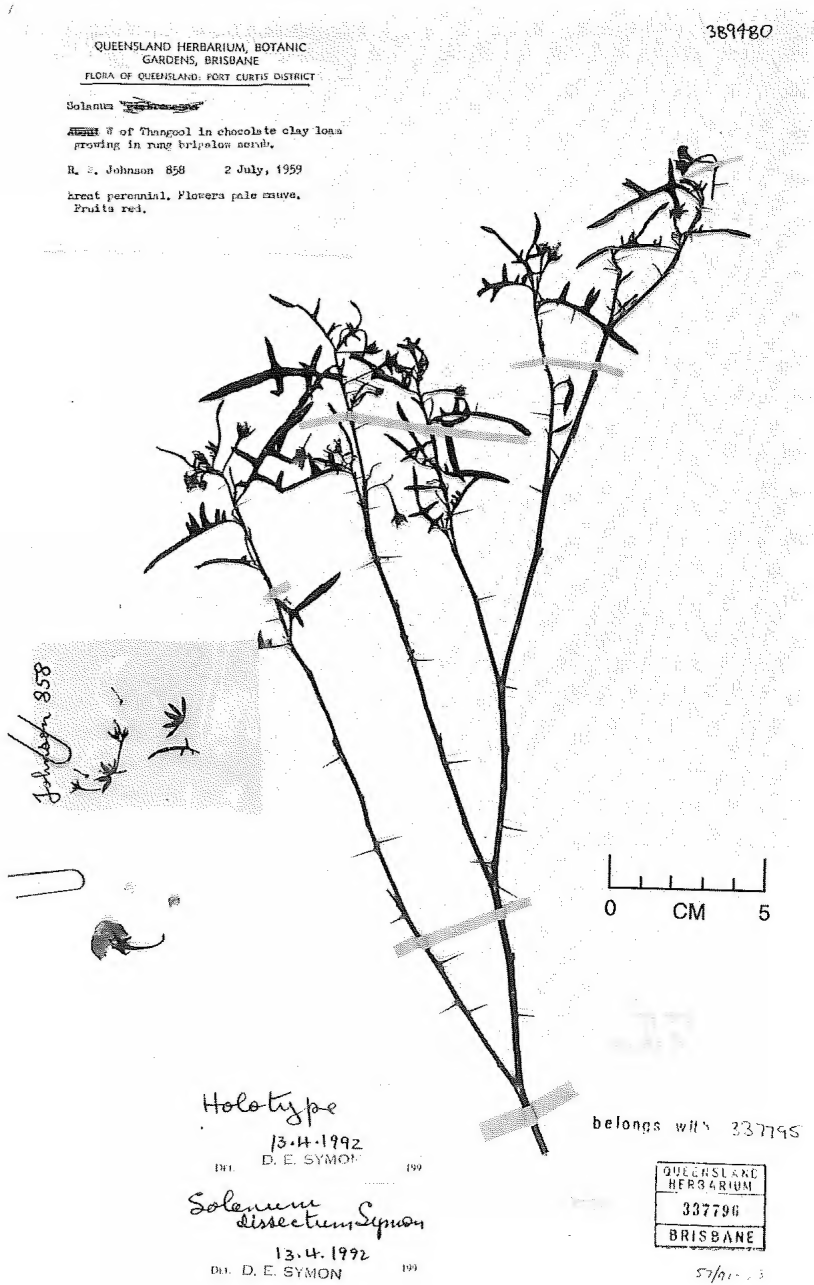


Fig. 2. Type of *Solanum dissectum*.



longae, sessiles, poris distalibus; ovarium globulare, c. 1.5 mm diametro; stylus 4–5 mm longus. Bacca globularis c. 1 cm diametro, rubra. Semina late reniformia in circumscriptione, compressa, c. 4 mm longa. **Typus:** Queensland. PORT CURTIS DISTRICT: West of Thangool, 2 Jul 1959, *R.W. Johnson* 858, chocolate clay loam, growing in rung brigalow scrub, erect perennial, flowers pale mauve, fruits red (holo: BRI (BRI 337796); iso: BRI (BRI 337795)). **Fig. 2.**

Small shrub to 50 cm tall; stems erect, reddish. Prickles 5–9 mm long, straight, scattered, 4–10 per 10 cm of stem in the few collections seen and a few on the mid-vein on the upper and lower surface of the leaves. All parts glabrous except for minute papillose hairs in leaf axils and towards the apex of the corolla lobes. Leaves 2–6 cm long, the lamina 2–4 mm wide, broadly lanceolate in outline but the lamina deeply lobed with (1) 2 or 3 (or 4) lobes on each side, rarely reduced to 1 pair or absent; lower lobes shorter than mid lobes; lobes 5–15 mm long, 2–5 mm wide, the sinuses between the lobes rounded. Inflorescence a short cyme c. 1 cm long bearing 1 or 2 prickles and 4 or 5 flowers; pedicel c. 7 mm long; calyx lobes c. 3 mm long, c. 2 mm wide at base, acumen 1 mm long; corolla deeply divided almost to base, pale mauve; lobes c. 7 mm long, c. 2 mm wide; anthers c. 3.5 mm long, c. 1 mm wide, sessile, poricidal; ovary globular, 1.5 mm diameter; style 4–5 mm long. Fruiting pedicel c. 12 mm long, slightly thickened distally; calyx not much enlarged in fruit; berry c. 1 cm diameter (few fruits seen), red. Seeds broadly reniform in outline, c. 4 mm long, flattened.

**Additional specimens examined:** Queensland. LEICHHARDT DISTRICT: McCrae property, 80 km S of Duaringa, Jul 1966, *Everist & McDonald* 3 (BRI). PORT CURTIS DISTRICT: 9.6 km W of Biloela, Jul 1959, *Johnson* 870 (BRI); Biloela, Sep 1966, *Brooks per Stevens* (BRI).

**Distribution and habitat:** South-eastern Queensland.

**Etymology:** The specific epithet is derived from the Latin *dissectus*, meaning dissected, a reference to the species' deeply divided leaves.

**Notes:** *Solanum dissectum* is unusual for a species with prickles in lacking stellate hairs, in which character it joins *S. pugiunculiferum*, an unusual species from northern Australia. Despite the lack of stellate hairs, I consider it clearly belongs with the group of Australian red-fruited species known as the *S. ferocissimum* group (Whalen 1984). These have simple, mostly acicular prickles, lobed leaves in some species, generally moderate to small flowers and inflorescences, and in all cases, red to blackish succulent fruits. The closest relatives of *S. dissectum* appear to be *S. coracinum*, described here, and *S. ferocissimum*, from which it differs in its glabrous nature, and more regularly and more deeply lobed leaves. This species was segregated in the Queensland Herbarium as *Solanum* sp. (Duaringa S.L. Everist+ 3) aff. *S. ferocissimum* but was not accounted for in the Flora of south-eastern Queensland (Stanley & Ross 1986). It would key there to *Solanum* sp. 3, now named *S. coracinum*. To separate these two species see table of differences under *S. coracinum* above.

***Solanum gympiense* D.E. Symon, sp. nov.**

Frutex ad 1 m altus, inermis, dense pubescens, pilis stellatis, plus minusve floccosis, interdum viscidis. Folia late elliptica, 6–12 cm longa, c. 4 cm lata; apex acutus; basis rotundata; in margine lobis late triangularibus; petiolus c. 1.4 cm longus. Inflorescentia cymae floribus 2–6; pedicellus c. 8 mm longus; calyx 5–7 mm longus; corolla ad 3 cm diametro, stellata-rotata, lobis late triangularibus, violacea; filamenta staminalia brevia; antherae c. 5 mm longae, tenues, sursum angustatae, poris distalibus; ovarium late conicum, glabrum; stylus c. 6 mm longus. Bacca globosa, vel apiculata, 5–7 mm diametro, rubra. Semina subtriangularia vel subreniformia in circumscriptione, compressa, 2–2.5 mm longa, foveolata. **Typus:** Queensland. WIDE BAY DISTRICT: Gundiah, 21 June 1927, *C.T. White* 3527 (holo: BRI (AQ038941)). **Fig. 3.**

A shrub to 1 m high, unarmed, with dense indumentum of stellate hairs (multiseriate stalked, porrect stellate, central cell as long as or much longer than lateral cells), somewhat

floccose, sometimes viscid, one report says plants aromatic. Leaves broadly elliptic, (3–) 6–12 cm long, (2.5–) 4–7 cm wide; apex acute; base rounded; margins with shallow broadly triangular to rounded lobes, more rarely undulate-sinuate; petiole (0.5–) 1.4–3.0 cm long. Inflorescence a short cyme of 2–6 flowers from

a mid to upper internodal position; peduncle (to first flower) 5–20 mm long; rhachis 5–25 mm long; pedicel c. 8 mm long; calyx c. 5–7 mm long, the lobes flattened, narrow, elliptic; corolla to 3 cm diameter (few available), stellate-rotate, divided nearly halfway, the lobes broadly triangular, pubescent outside, purple blue;

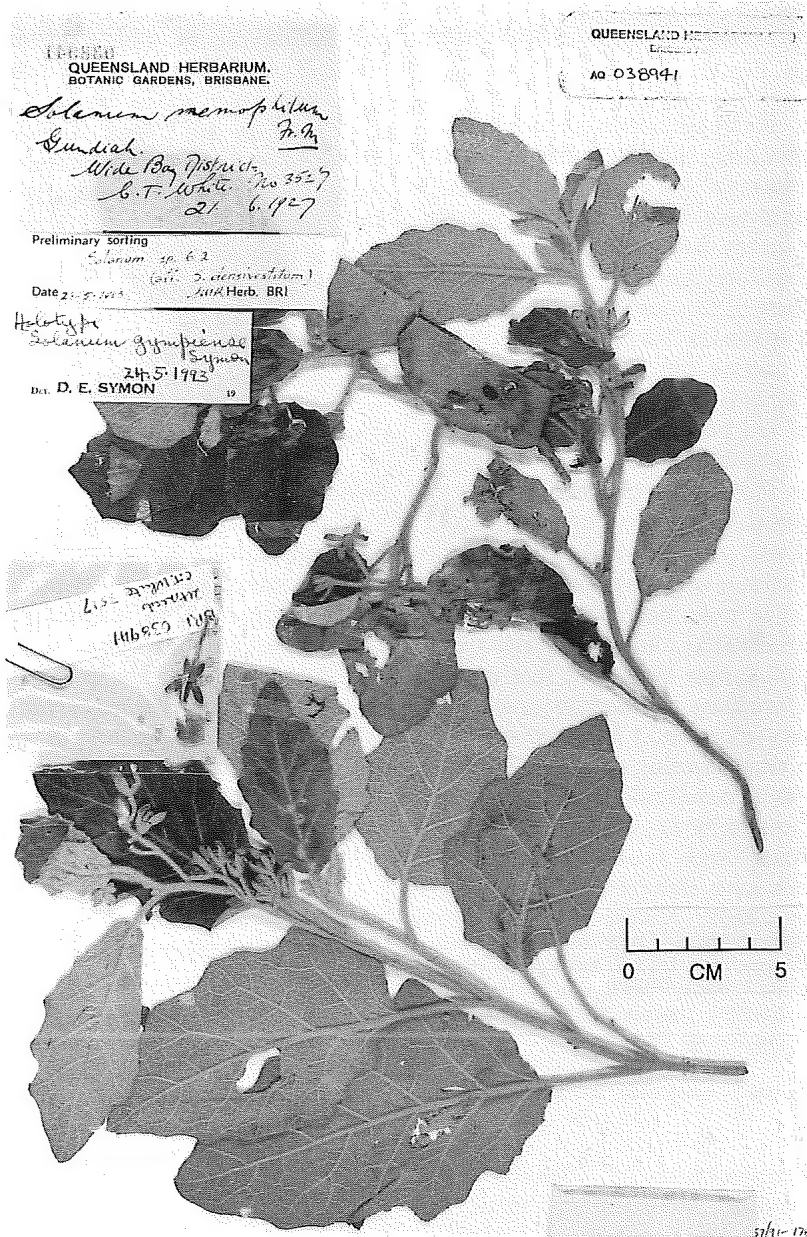


Fig. 3. Type of *Solanum gympiense*.

staminal filaments short; anthers c. 5 mm long, slender, tapered upwards, poricidal; ovary broadly conical, glabrous; style c. 6 mm long. Berry globular to apiculate, 5–7 mm diameter, red at maturity; calyx lobes then elliptic, 7 mm long, 2.5–3 mm wide flattened, subleafy. Seeds irregularly discoid or flattened and subtriangular to subreniform in outline, 2–2.5 mm long, minutely reticulate.

**Additional specimens examined:** Queensland. LEICHHARDT DISTRICT: Crest of Carnarvon Range, Mar 1960, *Johnson* 1451 (BRI); Carnarvon Range, Apr 1962, *Gittins* 452 (BRI). PORT CURTIS DISTRICT: Rosedale, Mar 1953, *Dovey* K5 (BRI). WIDE BAY DISTRICT: Woondum, Oct 1917, *Moore* 257 (BRI); Gympie, May 1953, *Douglas* [AQ323781] (BRI); Gympie, without date, *Kenny* [AQ323769] (BRI); Gympie, without date, *Anon* 14 [AQ323772] (BRI); 9.6 km NW of Tiaro, Apr 1959, *Ridley* [AQ323775] (BRI); Gundiah, without date, *Kajewski* [AQ323780] (BRI); 11.6 km N of Gympie, North Deep Creek road, Nov 1972, *Tutt* [AQ8344] (BRI); 11.6 km N of Gympie, North Deep Creek road, Dec 1972, *Tutt* [AQ8343] (BRI); 64 km S of Bundaberg, Jul 1983, *Jansen* 87 (BRI). MARANOA DISTRICT: 'Claravale', May 1962, *Johnson* 2440 (BRI); 1.5 km SW of Kilmorey homestead, May 1982, *Nelder & Thomas* 633 (BRI).

**Distribution:** South-eastern Queensland with most collections from between Rosedale and Cooroy but with an interesting disjunction in the Carnarvon Range area and south-westward towards Mitchell.

**Etymology:** The epithet in the name is derived from the town of Gympie in the general vicinity of which most collections have been made.

**Notes:** The information on the 16 collections seen is disappointingly scanty; only two give any dimensions of the plant, none describe the fresh berry and only one gives flower colour. These collections were originally labelled *S. nemophilum* or *S. densevestitum* or "affinities *S. densevestitum*" by me and were segregated in the Queensland Herbarium as *Solanum* sp. Q2. The species may be keyed out in the Flora of south-eastern Queensland (Stanley & Ross 1986, 418) as *Solanum* sp. 2.

The species is closely related to *S. densevestitum* F. Muell. from which it differs in its broadly elliptic leaves, shallow leaf lobing generally present and the presence of a peduncle bearing several flowers. There may also be a slight difference in fruit shape but this requires more field work to confirm.

*Solanum nemophilum*, *S. densevestitum* and *S. gympiense* form a closely related trio whose relationships require more study.

***Solanum stupefactum* D.E. Symon, sp. nov.**

Frutex ad 2 m altus, erectus. Aculei 1–5 mm longi, patentes vel aliquantum retrorsi, praecipue in caule. Omnes partes dense pubescentes pilis stellatis. Folia lamina late lanceolata, plerumque c. 9 × 3.5 cm, in margine integra; apex acutus; basis rotunda et obliqua; venae infra prominentes; petiolus c. 2 cm longus. Inflorescentia cymae floribus 4–12; flos infimus bisexualis; flores ceteri masculini. Flos infimus pedicello ad 2.5 cm longo, corolla rotata-stellata, ad 5 cm diametro et caesia, filamentis staminalibus c. 1 mm longis, antheris c. 7 mm longis, sursum angustatis, poris distalibus, ovario dense piloso, stylo c. 12 mm longo. Flores ceteri parviores, ovario et stylo vestigiali. Bacca globosa, ad 3 cm diametro, aurantiaca. Semina discoidea, 3–4 mm diametro, foveolata. **Typus:** Queensland. MORETON DISTRICT: northern outskirts of Yarraman township, 26°50'S, 151°59'E, 3 April 1975, *R.J. Henderson* 2286, southern facing hillslope amongst regeneration in a farm paddock, erect shrubs to 2 m, flowers pale blue, to c. 5 cm diameter, fruit green (immature), when ripe orange-yellow and 2–2.5 cm diameter, voucher for chromosome count by R. Henderson (2n = 24) (holo: BRI [AQ390461]; iso: CANB). **Fig. 4.**

Shrub to 2 m high with clonal regeneration. Prickles 1–5 mm long, straight, spreading or slightly retrorse mainly on the stem, a few on the petiole, rare on the upper and lower leaf surface. All parts with a dense indumentum of stellate hairs [multiseriate stalked, porrect stellate hairs with the central cell as long or much longer than lateral cells] somewhat floccose, slightly rusty. Leaves broadly lanceolate, to 15 × 7 cm though commonly 9 × 3.5 cm; margin mostly entire, occasionally repand on vigorous leaves; apex acute; base rounded, oblique; veins prominent below; petiole 2–3.5 cm long. Inflorescence a short cyme of 4–12 flowers from an upper internodal position, the lowest flower bisexual,

the upper flowers male; rhachis 1-5 cm long; lowest pedicel to 2.5 cm long; upper pedicels 1-1.5 cm long; calyces densely pubescent, calyx of hermaphrodite flower armed, lobes narrow triangular to 12 mm long, calyx of male flower unarmed, lobes narrowly triangular c. 7 mm long. Corolla of hermaphrodite flower ro-

tate-stellate to 5 cm diameter, divided scarcely halfway into broad rounded lobes. Staminal filaments c. 1 mm long. Anthers to 7 mm long, tapered upwards, poricidal. Ovary globular, densely pubescent with long hairs; style to 12 mm long. Male flowers smaller, ovary and style vestigial. Fruiting pedicel to 2 cm long, calyx

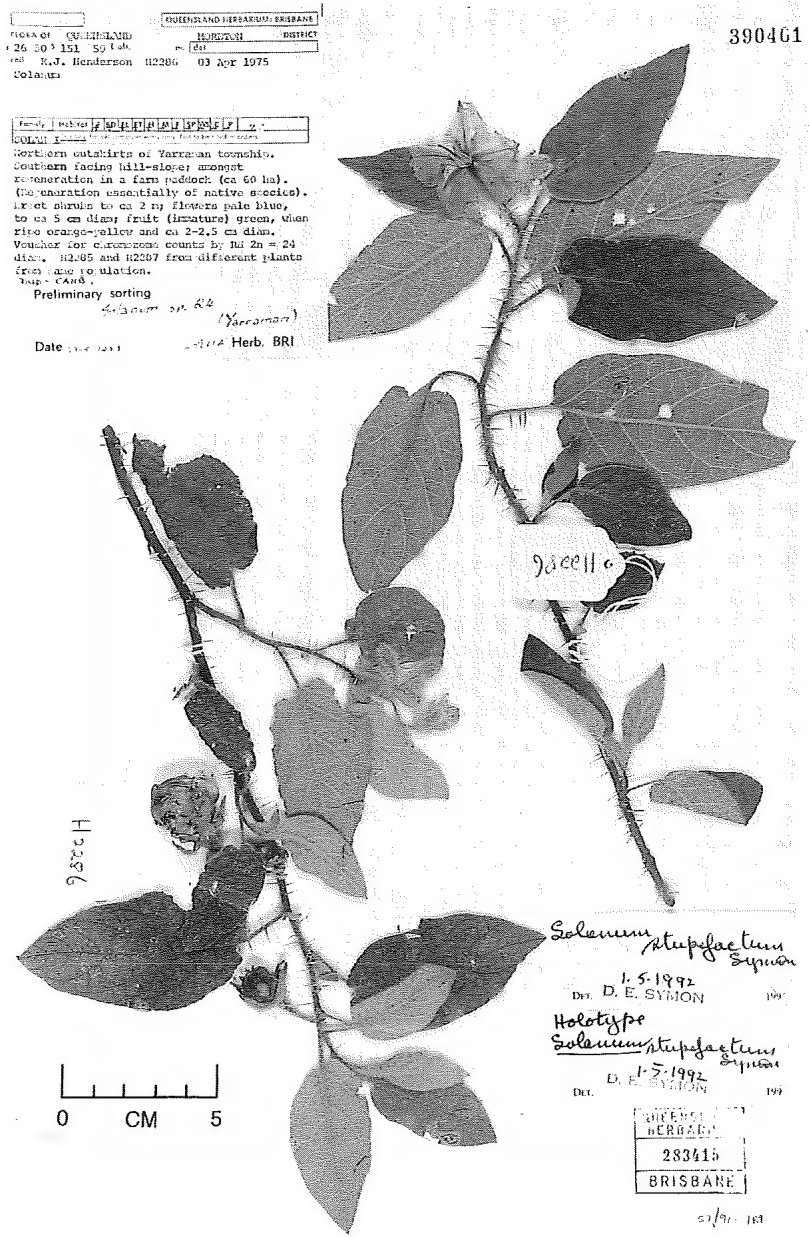


Fig. 4. Type of *Solanum stupefactum*.

enlarged to cover base of berry. Berry globose to flattened globose, to 3 cm diameter, finally orange-yellow. Seeds discoid with a hilum notch, 3–4 mm diameter, minutely pitted. Chromosome number  $2n = 24$  (Henderson 2286, BRI).

**Specimens examined:** Queensland. BURNETT DISTRICT: Portion 140, Neumgna-Tarong road, Apr 1975, Sampson [AQ107004] (BRI). DARLING DOWNS DISTRICT: Gowrie Mountains, without date, Bailey [AQ332189] (BRI). MORETON DISTRICT: adjacent State Forest 289, Yarraman, Mar 1975, Moriarty 1650, 1655, 1657, 1658 (AD, BRI); outskirts of Yarraman, Apr 1975, Henderson 2285, 2286, 2287 (BRI); Rockmount, 25 km S of Helidon, Aug 1986, Bird [AQ440370] (BRI); Paradise Falls, Sep 1986, Bird [AQ440401] (BRI); Paradise Range, Mt Sylvania, Sep 1986, Williams 86016 (BRI).

**Distribution and habitat:** South-eastern Queensland in the area bounded by Nanango, Pittsworth and Laidley, on disturbed agricultural land.

**Etymology:** The epithet in the name is derived from Latin *stupefactus*, to be stunned, relating to the surprise and astonishment at finding such a species in southern Queensland.

**Notes:** *Solanum stupefactum*, an east coast species, is unusual in its clear expression of andromonoecy. This character is more common in western Australian species of *Solanum*.

In eastern Australia, *S. campanulatum* may have several lower flowers berry-bearing but it has a deeply campanulate corolla and black seeds. *S. cinereum* may also have several

lower flowers with berries below relatively few male flowers. Again, the seeds of that species are dark grey and its berry finally dark brown to black and brittle. To neither of these does *S. stupefactum* seem closely related. Nor do the western Australian species seem closely related to it; these have denser tomentum, more prominent prickles on the calyx, larger fruits that are yellow rather than orange-yellow in colour and black or dark seeds. This species was segregated in the Queensland Herbarium as *Solanum* sp. (Yarraman V.K.Moriarty 1650) and is keyed out in the Flora of south-eastern Queensland (Stanley & Ross 1986, 420) as *Solanum* sp. 4.

### Acknowledgements

I am grateful to the Director of the Queensland Herbarium for the loan of specimens and to two referees who criticised the first draft of this paper.

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